

Summary of Current NBS/USSR Interactions  
May 19, 1975

The following summary of agreed or anticipated bilateral activities involving NBS personnel is arranged according to intergovernmental agreement, and within each agreement, according to the priority the NBS project coordinator attaches to the activity in terms of potential technical benefit to NBS or the U.S. In describing the level of priority, the coordinators selected from the following five categories: activity should not be continued; low; medium; high; and very high. These priorities do not take into account broader policy considerations that may not be apparent at the coordinator level.

The symbols next to the estimated cost of each activity have the following meanings:

- \*Cannot be supported from own project funds.
- #Supported by outside agency.

I. Science and Technology Agreement

A. Metrology

1. Standard Reference Data

D. R. Lide - Office of Standard Reference Data  
D. D. Wagman - Physical Chemistry Division  
W. H. Evans - Physical Chemistry Division  
D. Garvin - Physical Chemistry Division

Cost: \$3200

Priority: High

Action: a. Visit of NBS staff to U.S.S.R.  
b. Two week visit by two Soviets to NBS  
c. Two week visit by two Soviets to NBS

Comment: This project continues to be one of the more beneficial ones to NBS. A "Working Protocol" was signed June 27, 1974,

**\*DOC Waiver Letter In ERU File\***

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after a meeting in Tsachkadzor between Dr. Lide representing NBS and Drs. Zaks and Sychev representing GOSSTANDART. This document includes agreements on two aspects of cooperation:

a. Activities of the management offices, OSRD and GSSSD, such as exchange of publications and planning information;

b. Collaboration at the project level in six specified areas.

The areas agreed upon for first priority cover all those in which OSRD has already established working relations, including projects carried out in various Academy of Sciences laboratories. Therefore, this protocol should give us the flexibility to work with the projects we are interested in while still conforming to the designated channels of communication through GOSSTANDART.

## 2. Intercomparison of Standards for Ionizing Radiation

R. Loevinger - Center for Radiation Research  
S. R. Domen - Center for Radiation Research

Cost: \$2500

Priority: High

Action: Two NBS staff to U.S.S.R., one week visit by Soviet to NBS.

Comment: The proposed comparison of absorbed-dose standards is to take place in two steps. Step 1 would be a visit of two Soviets to NBS. Step 2 would be the transport of the NBS absorbed-dose standard to VNIIM and would take place only if during the discussions of Step 1 it is concluded that such an intercomparison would be scientifically important and useful to our standards program. Loevinger is ready to proceed with Step 1. The Soviet side has indicated readiness to send two specialists to NBS during the second quarter of 1975.

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3. Laser Energy Standard Comparison

H. S. Boyne - Electromagnetics Division  
R. L. Smith - Electromagnetics Division

Cost: \$3000\*

Priority: Medium

Action: A stay of 3-4 weeks at VNIFTRI

Comment: The proposed activity arose during the visit in May 1972 by a metrology delegation from NBS. Dr. Boyne is still interested in carrying out this project, but no specific plans have been developed and the project remains dormant.

4. Transportable volt standards

W. G. Eicke - Electricity Division  
B. F. Field - Electricity Division

Cost: \$4500\*

Action: The above cost estimate assumes that NBS people would take the standards to Moscow and participate in the measurement. If the intercomparison can be done by shipping the standards by air-freight, instead of by personal visits, no travel costs would be involved in this project. Costs beyond normal salaries would then be small.

Comment: Agreement has been reached to send standard cells to Leningrad in the summer or early fall of 1975 for purposes of inter-comparison. The project coordinators on both sides are in communication concerning the methodology.

5. Automated Information and Control Systems in Standardization

W. E. Andrus - Office of Engineering and Information Processing  
Standards

D. W. Fife - Systems and Software Division, ICST

L. D. Eicher - Engineering and Product Standards Division, IAT

Cost: \$4000

Priority: High

Action: Three NBS staff to U.S.S.R.

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Comment: V. I. Romanov and V. N. Shurupov visited NBS March 31, to April 4, 1975, to develop details and future plans for cooperation in this area. A visit to the U.S.S.R. by an NBS delegation is scheduled for September 1975.

6. Intercomparison of Thermal Voltage Converter Standards

B. N. Taylor - Electricity Division  
B. L. Dunfee - Electricity Division  
E. S. Williams - Electricity Division

Cost: None

Priority: Medium

Action: Work to be done at NBS by NBS staff. No travel involved.

7. Analysis of Fundamental Physical Constants

Barry N. Taylor - Electricity Division

Cost: \$500

Priority: Medium

Action: One week visit by Soviet to NBS.

Comment: The Soviet side has indicated a desire to cooperate in the determination of the fine-structure constant, the ratio of the mass of the proton to that of the electron, the relation of Planck's constant to the electron charge, and the refinement of Avogadro's number. VNIIM wanted to send two Soviet specialists to NBS in the first quarter of 1975, but the letter proposing this was delayed in the mail.

8. Intercomparison of Standard Thermocouples.

J. F. Schooley - Heat Division  
G. W. Burns - Heat Division

Cost: None

Priority: Medium

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Action: Specifications for the thermocouple, to be inter-compared have been exchanged. The work will be done by staff members of VNIIM and NBS at their own institutions. No exchange of personnel or other visits is planned.

9. Intercomparison of Pressure Standards

P. Heydemann - Heat Division

Cost: \$1300

Priority: Low

Action: One week visit to U.S.S.R.

Comment: The Soviet side believes that prior to an inter-comparison of standards for the unit of pressure it would be worthwhile to discuss and mutually develop the final measurement methodology. They propose that Dr. Heydemann visit VNIIM for this purpose around the middle of the second quarter of 1975. Although Dr. Heydemann has assigned a low priority to this activity, it is the only one in the metrology area that involves possible travel of NBS staff to the U.S.S.R. in the near future. Since NBS will soon be receiving 6-8 Soviets on 3-4 other projects if current proposals are implemented, it is recommended that Dr. Heydemann proceed with this visit.

10. Intercomparison of Laser Wavelengths

R. D. Deslattes - Optical Physics Division

W. G. Schweitzer - Optical Physics Division

H. P. Layer - Optical Physics Division

Cost: \$500

Priority: Low

Action: One week visit by two Soviets to NBS.

Comment: The Soviet side has accepted the NBS proposal that two Soviets visit NBS for familiarization with work conducted in

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this area. Dr. Roberts indicated in his letter of May 12, 1975 to Isayev that the names of the Soviets and the desired timing for the visit be cabled directly to Dr. Deslattes.

B. Standardization

11. Standardization

M. G. Domsitz - Consultant

Cost: \$2000

Priority: Medium

Action: Various projects or visits yet to be agreed.

Comment: The Office of Product Standards still has coordinating responsibility for this area, and the pace of implementation is characterized by lethargy. Little activity has occurred since the tentative work plan was developed last year during LaQue's visit to Moscow. Tkachenko recently wrote a letter addressed to the Department of Commerce proposing that a Soviet delegation visit the U.S. in the field of standards for heavy electrical equipment. Domsitz was assigned action on this proposal.

C. Cooperation between NBS and the Soviet Academy of Sciences.

In the Director's letter of May 12 to President Keldysh of the Soviet Academy he solicited Keldysh's views on a suggested direct relationship between NBS and the Academy. Envisioned within the program would be exchanges of team visits and long-term assignments of duration up to a year. Technical areas might include thermochemistry, spectroscopy, cryogenic engineering, chemical kinetics, and others. If Keldysh accepts this suggestion and suitable administrative arrangements can be made, a priority exchange might be that between NBS and the Institute for Low Temperatures in Kharkov. Academician Verkin, the Director of that institute, recently expressed to visiting NBS staff members his desire to send two young scientists for a period of 3 to 6 months, or possibly longer, to the NBS Cryogenics Division. Dr. Birmingham of Boulder has also indicated the wish to spend about 6 weeks in Kharkov.

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## II. Energy Agreement

### 12. MHD Power Generation

S. J. Schneider - Inorganic Materials Division  
H. P. R. Frederikse - Inorganic Materials Division  
T. Negas - Inorganic Materials Division  
W. R. Hosler - Inorganic Materials Division

Cost: \$6000#

Priority: Very High

Action: Estimated three visits to U.S.S.R. of two persons each.

### 13. Superconducting Power Transmission

B. W. Birmingham - IBS, Boulder  
V. D. Arp - Cryogenics Division  
M. C. Jones - Cryogenics Division

Cost: \$3000 + \$6000#

Priority: Medium

Action: Visit to U.S.S.R. by Birmingham in role of steering committee member, supported by own project funds.

Visits by Birmingham and others for project work, supported by ERDA.

## III. Environmental Agreement

### 14. Harmonization of Air and Water Pollution Standards

J. McNesby - Office of Air and Water Measurement  
G. Marinenko - Analytical Chemistry Division

Cost: \$4000\*

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Priority: Low

Action: Two-week visit to U.S.S.R.

IV. Housing and Other Construction Agreement

Comment: Neither the scope nor other specific details of the involvement of NBS in this agreement have been worked out. A draft memorandum of implementation, to be adopted at the first meeting of the Joint Committee in June 1975, has been prepared by HUD and lists NBS as a participating agency in five of the six project areas. These are:

- Building Design and Construction Management
- Building Systems and Utilities
- Building Materials
- Construction in Seismic Areas
- New Towns

It is assumed that costs of NBS participation in these projects would be covered by HUD project funds at NBS.

*V Other*  
*Calibration of Acoustographic Measuring*  
*Equipment*  
*Lerguson*